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PHASE I ENVIRONMENTAL SITE ASSESSMENT ADVISORY: SCHOOL PROPERTY EVALUATIONS REVISED SEPTEMBER 5, 2001

California Department of Toxic Substances Control
California Environmental Protection Agency

PURPOSE

This advisory was prepared to assist environmental assessors in performing Phase I Environmental Site Assessments (Phase I ESA) in accordance with the California Education Code requirements. The information in this advisory is intended solely as guidance and as educational reference material and should not be considered enforceable or regulatory in nature (i.e. This advisory does not have the force or effect of law). This document replaces any previous version.

The objective of this advisory is to provide guidelines for a uniform, thorough evaluation of environmental conditions at proposed school sites. Complete, well-prepared Phase I ESAs will result in reduced review time for Department of Toxic Substances Control (DTSC) staff, reduced requests for supplemental information, and reduced costs. Preparation of a comprehensive Phase I ESA may also serve to minimize the need for school districts to conduct a Preliminary Endangerment Assessment (PEA) at proposed school sites where all potential environmental hazards can be sufficiently evaluated as posing no risk to human health or the environment under any land use. In order to obtain DTSC approval for a Phase I ESA where no action is recommended, the Phase I ESA must contain sufficient detailed information to support the recommendation. Where additional investigation is needed in a Preliminary Endangerment Assessment, the Phase I ESA will help to identify and focus specific geographic areas or chemicals of concern.

The California Education Code requires that Phase I ESAs for potential school

sites be conducted in accordance with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, (ASTM Designation E 1527 and E 1528). The ASTM Phase I Environmental Site Assessment (ESA) Process is the national industry standard for evaluation of commercial real estate. However, the ASTM Phase I ESA standard may not provide as comprehensive an evaluation of natural and manmade hazardous materials as is required under California law. This advisory is intended to supplement the current ASTM Phase I ESA Standard (Designation E 1527-00, revision June 2000), and to provide recommendations for evaluation of environmental issues or conditions during a Phase I ESA.

Note: This document is released as an interim draft and will be subject to review and revision six months following the release date. This information is advisory only.

BACKGROUND

In order to obtain State funding for school property acquisition or new construction, California Education Code, Section 17213.1, requires that school districts conduct a comprehensive Phase I ESA for each proposed school site to determine whether there has been, or may have been, a release of hazardous materials or the presence of naturally occurring hazardous materials. If the Phase I ESA identifies the potential for hazardous material release or the presence of naturally occurring hazardous materials, a Preliminary Endangerment Assessment (PEA) is required to evaluate the threat posed to public health or the environment. The California Education Code requires DTSC to review these Phase I ESAs and PEAs, and to make a determination about the need for further action or remediation. School districts may elect to proceed directly to a PEA without having first completed a Phase I ESA.

As defined in the California Education Code, the minimum qualifications an environmental assessor must possess to prepare a Phase I ESA are listed as follows:

Class II Environmental Assessor, registered by the Office of Health Hazard Assessment
Professional engineer, registered in California
Geologist, registered in California
Certified engineering geologist, registered in California, or
Licensed hazardous substances contractor, with specific academic credentials

In addition, any person who conducts a Phase I ESA must have at least 2 years experience in the preparation of those assessments. The Phase I ESA should include documentation of the qualifications and experience of the environmental assessor.

For information about DTSC review process and timeframes for Phase I ESAs, refer to *DTSC Fact Sheet #2, Update on Environmental Requirements for Proposed School Sites/Construction Projects*, dated February 2001. This fact sheet is available on DTSC's Web Site at: http://www.dtsc.ca.gov//PublicationsForms/ADMIN_FAQ_VQ_10-2001.pdf

SUPPLEMENTAL EVALUATION RECOMMENDATIONS

ASTM Standard: DTSC recommends that the most recent revision of the ASTM Phase I ESA Standard be followed. At present, the most recent revision is ASTM E 1527 – 00, which was adopted in June 2000. The most significant change in the standard since the 1997 version is the requirement to "…provide **all supporting documentation** in the report or have it adequately referenced to facilitate reconstruction of the assessment by another environmental professional." (Source: ASTM Web Site)

General Information: DTSC recommends that a Phase I ESA include a location map, a site map, and a description of the intended use of the property. (i.e., whether the district intends to use all or a portion of the parcel, type of school proposed, disposition of any existing structures, and maps showing the relationship of the site to existing and proposed streets). The Phase I ESA should also include the proposed source of domestic water supply for the property. Additionally, the Phase I ESA should include, where possible, copies of the aerial photographs reviewed during the Phase I ESA.

If a previous Phase I ESA has been conducted for the site and is greater than 180 days old, DTSC recommends an addendum be prepared to verify site conditions or describe changes in site conditions or site boundaries since the Phase I was conducted. This addendum should include a site reconnaissance visit.

NOTE: A Phase I ESA is intended to identify the presence or likely presence of hazardous substances or materials based on historical or current site use. DTSC does not recommend any sampling during a Phase I ESA. Any sampling or data evaluation required at a site, to identify a release, characterize the extent of a release, or evaluate the health risks posed by a release should be done in a Preliminary Endangerment Assessment.

A school district may, choose to proceed directly to the Preliminary Endangerment Assessment process without first submitting a Phase I ESA for DTSC review. This process may be preferred if the Phase I ESA recommends a Preliminary Endangerment Assessment. If a school district elects to submit sampling data in a Phase I ESA that was not performed under a DTSC approved work plan, the school district takes a risk that DTSC will require that the sampling be re-done in a Preliminary Endangerment

Assessment. Likewise, DTSC may recommend a Preliminary Endangerment Assessment be prepared for various reasons including:

- Recognized Environmental Conditions are identified
- Chemicals of Concern are detected on site
- Conflicting data or information
- Poor Quality Data or Sampling Data Gaps

Recommended Supplemental Evaluation Areas. When preparing a Phase I ESA, DTSC recommends the following potential sources of hazardous material releases and naturally-occurring hazardous substances be identified and evaluated:

1. **Agricultural Use**. Past agricultural practices have been shown to be the source of hazardous soil conditions, including dangerous levels of pesticide residuals and flammable levels of methane. DTSC recommends that the property be evaluated to identify current or historical agricultural use. The Phase I ESA should provide specific detail as to the types of crops grown, uses and types of irrigation, and historical pesticide application practices. The Phase I ESA should provide a detailed description of historical use and supporting documentation, including interviews with or affidavits from operators, for the following:

    a) The type(s) of historical agricultural use and pesticide application
    b) The potential presence of persistent pesticides, including:
        Organo-chlorine pesticides
        Arsenical herbicides
    c) The presence, location and size of:
        Agricultural production wells
        Electrical transformers, and potential for PCBs
        Sumps, pits, ponds, lagoons (methane, pesticides)
        Feedlot or dairy production waste ponds (methane)
        Pesticide/herbicide mixing areas
        Cattle pesticide dip pits (pesticides, PAHs)
        Burn areas (PAHs, Dioxins)

NOTE: DTSC has prepared *Interim Guidance For Sampling Agricultural Soils for Proposed School Sites*. This guidance provides a list of pesticides and herbicides of concern and typical half-lives and is available on DTSC's Web Site at: HTTP://WWW.DTSC.CA.GOV/SITE_MIT/SPEC or by contacting DTSC as listed below.

2. **Mines.** DTSC recommends that the Phase I ESA identify the presence of abandoned/inactive mines or mine waste. If the property has the potential to contain abandoned/inactive mines or mine waste, a Phase I ESA for the presence of hazardous substances should be conducted using DTSC's Abandoned Mine Lands Preliminary Assessment Handbook (DTSC, 1998). This guidance provides non-technical information explaining the concerns associated with abandoned/inactive mines or mine wastes, and technical information to aid environmental consultants who may need to develop sampling plans for these types of sites. Abandoned/ inactive mines or mine wastes may have associated heavy metal contamination or mineral hazards and should be evaluated for presence of toxic, corrosive, radioactive, or otherwise noxious metals, chemicals or materials or unusual environmental conditions resulting from past mining, milling and/or smelting operations. Hazards may include:

    a) Metals (e.g., chromium, copper, lead, mercury, nickel)
    b) Metalloids (e.g., arsenic, selenium)
    c) Minerals (e.g., asbestos)

3. **Former U.S. Government Use or Ownership**. DTSC recommends that the Phase I ESA identify any current or former U.S. Government ownership or use of the property and clearly identify the specific land use. Any previously completed investigations should be summarized and/or included in the Phase I ESA. At a minimum, the following should be identified:

    a) Formerly Used Defense Sites, Department of the Army, Department of the Air Force, Department of the Navy, or Department of Defense ownership or usage;
    b) Potential for presence of unexploded ordnance;
    c) Department of Energy use or ownership.

4. **Current or Prior Residential Usage.** DTSC recommends that property that is, or has been, utilized for residential use should be evaluated to identify the potential for the following non-residential activities:

    a) **Use of pesticides**. The site should be evaluated for unusual or expansive farming or gardening use.
    b) Lead-based paint. Houses constructed prior to 1978 may contain lead-based paint. The Phase I ESA should identify the potential for the presence of lead-based paint. DTSC has prepared *Interim Guidance for Evaluating Lead-Based Paint and Asbestos-Containing Materials at Proposed School Sites,* dated July 23, 2001. This guidance should be referred to when lead-based paint is suspected.

c) Asbestos-containing material. Houses constructed prior to 1977 may contain asbestos-containing materials (ACM). The structures should be evaluated during the site reconnaissance for the potential presence of ACM. DTSC has prepared *Draft Interim Guidance for Evaluating Lead-Based Paint and Asbestos-Containing Materials at Proposed School Sites*, dated July 23, 2001. This guidance should be referred to when the presence of ACM is known or suspected.
d) **Septic systems, cesspools, sumps, location of leach fields**. The Site should be evaluated for evidence of non-residential activities, which may have resulted in the disposal of hazardous substances in the septic system, (e.g., automobile maintenance, painting, or hobby, which may have utilized hazardous substances).
e) **Underground/aboveground storage tanks** (heating oil, gasoline, etc.).
f) **Non-residential usage of garage or outbuildings** (e.g., vehicle maintenance, painting, pesticide storage). The site should be evaluated for presence or evidence of non-residential use of garage or outbuildings, which may have resulted in the release of hazardous substances.

5. **Lead-Based Paint**: Buildings constructed prior to 1978 may contain lead-based paint. Weathering, paint scraping, chipping and normal wear may cause historical buildup of hazardous levels of lead in the soil around these buildings DTSC has prepared *Draft Interim Guidance for Evaluating Lead-Based Paint and Asbestos-Containing Materials at Proposed School Sites*, dated July 23, 2001. This guidance should be referred to if lead-based paint is suspected on buildings.

6. **Easements**. DTSC recommends that the Phase I ESA identify current or former easements which may have associated hazardous substances, including but not limited to:

a) Pipelines (including petroleum, high-pressure natural gas, and oil transmission lines, and any reports of leaks, releases or spills). The Phase I ESA report need not include neighborhood natural gas, water or sewer service lines.
b) Railroads (include any reports of railroad accidents, leaks, releases or spills.)

7. **Asbestos**. DTSC recommends that the property be evaluated for the presence of both naturally-occurring asbestos and asbestos-containing material (ACM). Additional DTSC guidance is now being developed for evaluation and management of naturally occurring asbestos. The presence of ACM does not necessarily preclude a “no action” determination, however, the presence of naturally-occurring asbestos may require a Preliminary Endangerment Assessment. DTSC recommends that a Phase I ESA

should, at a minimum, identify the following conditions:

a) Asbestos Containing Material (ACM) – When on-site structures are known or suspected to have ACM, asbestos surveys, asbestos management programs, or records certifying structures have undergone asbestos survey and abatement, should be referenced in the report. ACM should only be removed by a contractor that is licensed by the Contractor's State License Board to manage hazardous substances. NOTE: DTSC has prepared *Draft Interim Guidance for Evaluating Lead-Based Paint and Asbestos-Containing Materials at Proposed School Sites*, dated July 23, 2001. This guidance should be referred to when ACM is known or is suspected in on-site structures.
b) Naturally-Occurring Asbestos/Ultramafic Rock – Natural occurrences of asbestos are more likely to be encountered in, and immediately adjacent to, areas of ultramafic rocks. Ultramafic rocks may be partially or completely altered to serpentinite, a type of metamorphic rock. Sometimes the metamorphic conditions are right for the formation of chrysotile asbestos or amphibole asbestos in bodies of ultramafic rock, or along their boundaries. Sites near areas of ultramafic rock should be evaluated by a California-registered geologist for the potential to have naturally occurring asbestos. If the site has the potential for having naturally-occurring asbestos, a California registered geologist should perform a visual assessment of the property as well as review existing geologic surveys to determine if surficial rocks or geologic formations are present which could contain asbestos.
c) Asbestos in Fill – The use of asbestos containing fill material should be avoided. If the site is located in an area near ultramafic rock sources, the site should be evaluated for the potential to have serpentine rock used as road bed or fill material.

8. **Other Naturally Occurring Hazardous Materials.** DTSC recommends that the property be evaluated for the potential presence of high concentrations of naturally-occurring hazardous materials such as heavy metals (e.g., chromium, mercury, nickel) metalloids (e.g., arsenic, selenium), gases (e.g., methane, hydrogen sulfide), and radioactive elements (e.g., radon gas). The Phase I ESA should reference known concentrations of local or regional naturally occurring hazardous materials, such as regional background databases.

9. **PCBs.** DTSC recommends that the property be evaluated for the presence of electrical or hydraulic equipment, which have the potential to contain polychlorinated biphenyls (PCBs). Any PCB management or abatement programs should be identified

and discussed. A Phase I ESA should, at a minimum, identify the past or current presence of:

a) Electrical Transformers
b) Oil-filled electrical equipment (such as electrical switches or ballasts)
c) Hydraulic systems

10. **Petroleum**. The property should be evaluated for the presence of petroleum deposits. The environmental professional should check with the Department of Conservation District Office, of the Division of Oil and Gas. At a minimum, the property should be evaluated for the potential for presence of current or former:

a) Oil fields
b) Oil and gas wells
c) Oil production area
d) Natural gas production
e) Oil or natural gas reserves
f) Methane
g) Hydrogen Sulfide (H_2S)

The Phase I ESA should also reference any geo-technical or geo-hazard reports, and discuss whether or not trenching has been done to identify faults that might allow petroleum, oil or gas seepage.

11. **Fill Material**. DTSC recommends that the property be evaluated for evidence of the use of fill material on the site; if possible, the source of any fill material should be specified. Fill characterization data should be presented, where available, for any property with fill material. "Clean Fill" may not necessarily be nonhazardous. So-called "clean fill" may contain hazardous substances including polynuclear aromatic hydrocarbons, heavy metals, asbestos, pesticides, heavy metals, PCBs, petroleum, or volatile or semi-volatile organic carbon compounds. Special attention should be paid to fill sources including:

a) Mine waste for presence of heavy metals or asbestos.
b) Fill material that originates from an off-site or unknown source. Off-site fill sources should be identified in the report.

NOTE: If a proposed school site is known to need off-site fill, DTSC recommends that the Phase I ESA identify the potential fill source, if possible. DTSC is preparing an *Advisory For Acquiring Clean Fill*. This guidance was not ready for distribution at the time of this

advisory.

12. **Debris**. DTSC recommends that the Phase I ESA identify the presence and characteristics of:

    a) Illegal dumping
    b) Debris piles
    c) Burn dumps

13. **Illegal Drug Manufacturing Sites; Clandestine Methamphetamine Laboratories.** DTSC recommends that the Phase I ESA assess whether the property has been identified as a location of previous law enforcement or DTSC cleanup activities for illegal drug laboratories. To do this, the environmental assessor may contact DTSC's Emergency Response Unit, and request a database search for the subject property. For properties not listed in DTSC's database, local law enforcement and county environmental health databases should be searched. DTSC's Emergency Response Unit may be reached at (916) 255-6504 during normal business hours. DTSC recommends that the Phase I ESA assess whether the property has been identified as a location of previous law enforcement or DTSC cleanup activities for illegal drug laboratories. To do this, the environmental assessor may contact DTSC's Emergency Response Unit, and request a database search for the subject property.

FOR MORE INFORMATION

Please contact DTSC's School Property Evaluation and Cleanup Division if you need clarification or additional information:

Southern California Sites:

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